Amendments to the Specification

Please amend the paragraph at page 1, lines 5-9, to read as follows:

This application is based upon and claims the benefit of priority under 37 CFR §119 from the prior Japanese Patent Application 2000-098026, filed March 31, 2000; and under 37 CFR §120 from U.S. Application Serial No. 09/810,649, filed March 19, 2001, the entire contents of which are incorporated herein by reference.

Please amend the paragraph at page 4, line 19, to page 5, line 6 to read as follows:

Here, the metal plating layer (metal plating film) obtained by plating processing is fine, and better in conductivity and hardness, compared to the metal film obtained by [[spattering]] sputtering method or printing method. As for the conductivity, the metal plating film is almost equivalent to bulk metal (equal or superior to about 99% of bulk metal conductivity), and lower in resistance compared to [[spattered]] sputtered metal film (about 30 to 90%), and thick film printed metal film (about 10 to 20%). Concerning the hardness, when compared in Vickers [[harness]] hardness and Brinell [[harness]] hardness, the metal plating film is almost equivalent to the bulk metal (equal or superior to about 90%) and can be about 10 times in some cases, and extremely harder than the [[spattered]] sputtered metal film and thick film printed metal film.

Please amend the paragraph at page 5, lines 12-17 to read as follows:

Further, the metal plating film can be formed in an almost even thickness, [[event]] even if the surface to be plated is rough. For example, the metal plating film formed on the cathode line surface can make the film thickness almost equivalent at the top and the side of the cathode line.

Please amend the paragraph at page 5, line 27, to page 6, line 7 to read as follows:

Besides, when a convex emitter structure is formed using metal plating film, the electron emission point can be fixed easily, as electric field is concentrated to the convex tip section. In addition, as convex metal plating layer can be separated easily from the mold by lubricating effect of fullerene [[of]] or the like, mold wear or damage can be suppressed even when the mold is used repeatedly.

Please amend the paragraph at page 6, lines 8-14 to read as follows:

Moreover, in the field emission type cold cathode device, the carbon nanotubes may have a conductive material inside. The conductive material is preferably a [[content]] constituent of a plating liquid used for forming the metal plating layer. The conductive material is preferably selected from Mo, Ta, W, Ni, Cr, Fe, Co, Cu, Si, LaB_6, AlN, GaN, carbon, graphite and diamond.

Please amend the paragraph at page 7, line 21, to page 8, line 5 to read as follows:

A vacuum micro device according to a second aspect of the present invention, comprises: a substrate; a metal plating layer formed on the substrate, the metal plating layer containing at least one carbon structure selected from a group of fullerenes and carbon nanotubes, and the carbon structure being stuck out from the metal plating layer and a part of the carbon structure being buried in the metal plating layer; and an electrode disposed separately from the substrate, the electrode being applied a higher electrical potential than an electrical potential applied to the metal plating layer.

Please amend the paragraph at page 8, lines 9-23 to read as follows:

A vacuum micro device according to a third aspect of the present invention, comprises a first substrate; a conductive layer formed on the first substrate; a metal plating layer formed on the conductive layer, the metal plating layer containing at least one carbon structure selected from a group of fullerenes and carbon nanotubes, and the carbon structure being stuck out from the metal plating layer and a part of the carbon structure being buried in the metal plating layer; a second substrate opposed to the first substrate; an electrode formed on the second substrate, the electrode being applied a higher electrical potential than an electrical potential applied to the metal plating layer; and a luminescent material formed on the electrode.

Please amend the paragraph at page 12, lines 6-11 to read as follows:

First, as shown in FIG. 1A, a cathode line 12 is formed on a glass substrate (support substrate) 11. Considering signal delay in a large field emission type display, Ni plating film allowing to obtain a high conductive film [[as]] is formed with a thickness of about 2 μm, as metal film to be the cathode line 12.

Please amend the paragraph at page 12, lines 12-19 to read as follows:

Next, Ni-B-P base electroless plating liquid 13a, adjusted to about PH5, is prepared by dissolving about 25g of nickel sulfate, about 40g of sodium hypophosphite, about 10g of sodium acetate, about 10g of sodium citrate, and about 30g of boric acid in about 1 [[litter]] liter of distillated water. About 50g of fullerene C_{60} or carbon nanotube are mixed in this plating liquid.

Please amend the paragraph at page 13, lines 3-21 to read as follows:

As for fullerene, except for C_{60}, higher order fullerenes having more than 60 carbons, such as C_{70}, C_{76}, C_{82}, C_{84}, C_{90}, C_{96}, $\cdots$, C_{240}, C_{540}, C_{720} and so on exist substantially without limit, and of course they may also be used. In addition, as the inside of [[fullerene]] fullerene is hollow, onion type [[fullellenes]] fullerenes wherein several layers of lower order fullerene are packed in a higher order fullerene exist, and they may be used. Moreover, fullerenes encapsulating metal in the cavity, such as La@C_{60}, La@C_{76}, La@C_{84}, La_2@C_{80}, Y_2@C_{84}, Sc_3@C_{82}, or the like may also be used. Further, hetero [[fulluerene]] fullerene incorporating atoms other than carbon, such as N, B, Si in the skeletal portion of [[fulleren]] fullerene may be used. These fullerenes can be obtained by evaporating carbon by means of laser irradiation, arc discharge or resistance heating to graphite, cooling, reacting and condensing evaporated carbon passing through helium gas, and collecting condensed carbon by a collection member.

Please amend the paragraph at page 19, line 24, to page 20, line 3 to read as follows:

Next, an electroplating liquid 13b, adjusted to about PH4, is prepared by dissolving about 600g of nickel sulfamate, about 5g of nickel chloride, about 30g of sodium hypophosphite, and about 40g of boric acid and about 1g of saccharin in about 1 [[litter]] liter of distilled water. About 40g of carbon nanotube are mixed in this plating liquid.

Please amend the paragraph at page 25, line 26, to page 26, line 7 to read as follows:

First, as shown in FIG. 6A, a cathode line 52 is formed on a glass substrate (support substrate) 51. Following this, an insulation layer 53 made of SiO_2, or SiN or the like is formed on the glass substrate 51 and the cathode line 52, and further, a gate electrode layer

54 made of conductive material such as W is formed thereon. The insulation layer 53 can be formed by electron beam evaporation method, [[spattering]] sputtering CVD method or others.

Please amend the paragraph at page 31, lines 4-15 to read as follows:

Thus, the substrate 111 is immersed in the plating solution 113 for about 3 minutes. As the result, fullerene or carbon nanotube has precipitated down to contact with the surface of the substrate 111 and the photoresist pattern 112, and a Ni-B-P base electroless plating layer (metal plating layer 115) containing fullerene or carbon nanotube is formed on the surface of the substrate 111 and the photoresist pattern 112 with a thickness of about 3 μm as shown in FIG. 10B. Then, the photoresist pattern 112 is eliminated by the stripper solution and the metal plating layer 115 on the photoresist pattern 112 is [[lift]] lifted off and eliminated.

Please amend the paragraph at page 33, lines 1-7 to read as follows:

First, as shown in FIG. 12A, an insulation layer 132 made of SiO_2 or SiN or the like is formed on the metal substrate 131, and further, a gate electrode layer 133 made of conductive material such as W is formed thereon. The insulation layer 132 can be formed by electron beam evaporation method, [[spattering]] sputtering method, CVD method or others.

Please amend the paragraph at page 34, line 26, to page 35 to read as follows:

In addition, for the metal plating layer obtained by the plating method, it is possible to manufacture with a large thickness such as about 300 μm or more, and it is possible to reduce the wiring resistance greatly. On the other hand, for the metal layer obtained by the [[spattering]] sputtering method, the increase of thickness may cause to peel off the film or deteriorate the film quality by the inner stress, therefore, in practice, the film thickness is limited to about 1 to 2 μm or less, and it is difficult to reduce the wiring resistance. As for the thick film printing, the film thickness that can be manufactured by a single printing is normally limited to about 10 to 50 μm. Consequently, for manufacturing a film equal or superior to several hundreds μm in thickness, it is necessary to anneal each time it is printed, provoking the deterioration of carbon nanotube.